DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AB83

Endangered and Threatened Wildlife and Plants; Proposed Listing of Water Howellia (Howellia aquatilis) as Threatened

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule and notice of petition finding.

SUMMARY: The U.S. Fish and Wildlife Service (Service) proposes threatened status for a plant, *Howellia aquatilis* (water howellia). *Howellia aquatilis* has been extirpated from historical sites in Washington and Idaho and entirely from California and Oregon. Small

populations currently are extant in Montana, Washington, and Idaho. The species is threatened by impacts from timber harvesting, encroachment by an exotic grass, development, and grazing. If made final, this proposed rule would implement Federal protection of the Endangered Species Act of 1973, as amended. Comments from the public regarding this proposed rule are sought.

DATES: Comments from all interested parties must be received by June 15, 1993. Public hearing requests must be received by June 1, 1993.

ADDRESSES: Comments and materials concerning this proposal should be sent to Kemper McMaster, Field Supervisor, U.S. Fish and Wildlife Service, Montana/Wyoming Field Office, Federal Building, 301 South Park, P.O. Box 10023, Helena, Montana 59626. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: Lori Nordstrom at the above address (406–449–5225).

SUPPLEMENTARY INFORMATION:

Background

Howellia aquatilis (water howellia) comprises a monotypic genus in the family Campanulaceae (the bellflower family). *H. aquatilis* was described by Gray in 1879 from plants collected by Thomas and Joseph Howell near Portland, in Multnomah County, Oregon (Gray 1879 *in* Shelly and Mosely 1988). *H. aquatilis* is an aquatic annual that grows 10–60 cm (4–24 in) tall. Plants have extensively branched, submerged, or floating stems with narrow leaves, 1–5 cm (0.4–2 in) in length. *H. aquatilis* produces two types of flowers: Small, inconspicuous flowers beneath the water's surface and white, emergent flowers, 2–2.7 mm long (0.08–0.11 in) (adapted from Hitchock et al. 1959 and Dorn 1984 *in* Shelly and Moseley 1988). Reproduction is primarily by self-fertilization.

Presence of *H. aquatilis* appears closely correlated with the physical and climatic characteristics of its habitat (S. Shelly, U.S. Forest Service, pers. comm., 1991). *H. aquatilis* most frequently occurs in glacial pothole ponds and former river oxbows whose bottom surfaces are firm, consolidated clay and organic sediments. These wetlands are filled by spring rains and snowmelt runoff and dry out to some extent by the end of the growing season depending on temperature and precipitation. The wetland margins are usually partially surrounded by deciduous trees. Within these habitats, *H. aquatilis* is found in shallow water or around the edges of deep ponds (Shelly and Moseley 1988).

Howellia aquatilis is an annual plant, reproducing entirely from seed. Seeds of *H. aquatilis* are not capable of germinating under water. Germination only occurs if ponds dry out enough to expose the seeds to air (Lesica 1990). Therefore, the size of a colony in a particular year is directly affected by the extent to which the pond dried out in the previous growing season.

Exceedingly wet or dry seasons will have a detrimental effect on the size of a colony the following year. In wet years when ponds do not dry out, seeds do not germinate. In overly dry years, ponds may dry up, killing *H. aquatilis* plants before they are able to produce seeds. The length of time an *H. aquatilis* seed bank remains viable is unknown.

Howellia aquatilis lacks detectable genetic variation within or among populations (Lesica et al. 1988). This suggests that all populations of *H. aquatilis* represent a single, narrowly adapted genotype. This lack of detectable genetic variation correlates with the species' strict adaptation to a highly specific habitat.

Seventy-nine colonies of *H. aquatilis* are known to remain within the species' historic range. Nearly all of these colonies are clustered in two main population centers. Nineteen colonies are found in the vicinity of Spokane, Washington (18 in Spokane County and 1 in Latah County, Idaho). Fifty-nine colonies are found in the drainage of the Swan River in northwestern Montana (Lake and Missoula Counties). One isolated colony also exists near Vancouver in southwestern Washington (Clark County).

Within the two main population centers, individual colonies occur in smaller clusters of closely adjacent ponds with some outlying colonies existing. Additionally, apparently suitable yet unoccupied habitat exists within these main population centers. It is suspected that the colonies within these population centers are interdependent, acting as sources of colonists and, therefore, as protection against environmental stochasticity (S. Shelly, pers. comm., 1991).

Historically, *H. aquatilis* was known also from one site in California, four in Oregon, one additional site in Washington, and another site in Idaho (Shelly and Moseley 1988). *H. aquatilis* has not been relocated at these sites and is assumed extirpated (Shelly and Moseley 1988; S. Vrilakes, Oregon Natural Heritage Program, pers. comm., 1991).

Most of the colonies are extremely small. Of the 59 colonies in Montana, one occurs in a 12 ha (30 ac) pond, one is in a 2 ha (5 ac) pond, one is in a 1.6 ha (4 ac) pond, 4 are in 1.2 ha (3 ac) ponds, 24 are in ponds 0.4 to 0.8 ha (1 to 2 ac) in size, and the remaining 28 are in ponds of 0.4 ha (1 ac) or less (Shelly and Moseley 1988). This means that the 59 colonies in Montana occur in ponds with a maximum area of only 51 ha (127 ac). In addition, information from Montana indicates that most colonies occupy less than 100 percent of the ponds where they occur. Many colonies occupy less than 50 percent of the pond, and some occupy less than 5 percent of the area (Schassberger and Shelly 1991). This means that the 59 colonies in Montana probably occupy less than 30 ha (75 ac) of aquatic habitat. The one colony in Idaho is in a pond about 0.4 ha (1 ac) in size. Size information is available for 16 of the 19 populations in Washington. Two colonies are in a 0.8 ha (2 ac) pond, but the other 14 are in ponds of 0.4 ha (1 ac) or less (D. Naslund, Washington Natural Heritage Program, in litt., 1992).

Of the 59 known colonies of *H. aquatilis* in Montana, 21 (36 percent) are on private land, 34 (58 percent) are on land administered by the U.S. Forest Service, and 4 (7 percent) occur on private and U.S. Forest Service lands (Schassberger and Shelly 1991). In Washington, 11 of the 19 (58 percent) colonies are on private land, 7 (37 percent) are on U.S. Fish and Wildlife Service (Service) administered land, and one is on State land (D. Naslund, in litt., 1992). The single Idaho colony is on private property (R. Moseley, Idaho Natural Heritage Program, pers. comm., 1991).

In the February 21, 1990, **Federal Register** Notice of Review, *H. aquatilis* was reclassified from a category 2 species to a category 1 species. Shelly and Moseley (1988) recommended the reclassification for several reasons: (1) The species has been extirpated from a large portion of its previously known range, (2) it has a narrow ecological amplitude, (3) it lacks detectable inter- and intrapopulation genetic variation, and (4) habitat alteration continues in a major portion of its range. Category 1 species are those for which the Service currently has substantial information on file to support the biological appropriateness of listing as threatened or endangered. This category 1 species has a listing priority of 1, although this is now considered high after further assessment of the species' status and threats. The Service now believes a priority 4 more appropriate (see 48 FR 43098 for a description of the Service's listing priority guidelines).

As a draft proposed rule was being reviewed, on October 30, 1991, the Service was petitioned to list *H. aquatilis* as an endangered species. This proposed rule serves as evidence that substantial information is available to support that the requested action is warranted and also serves as the Service's final finding for the petitioned action.

Summary of Factors Affecting the Species

Section 4(a)(1) of the Endangered Species Act (Act) of 1973 (16 U.S.C. 1531 *et seq.*) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal lists. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to *Howellia aquatilis* (Gray) (water howellia) are as follows:

A. The Present or Threatened Destruction, Modification, or Curtailment of its Habitat or Range

Because *H. aquatilis* has very narrow ecological requirements, even subtle changes in its habitat could be devastating to a population. It is suspected that any disturbance that alters the local surface or subsurface hydrology around the habitat may influence the colonies. By altering water quality and the composition of the wetland bottom and vegetation, some activities may affect wetland succession and the viability of *H. aquatilis* colonies. The species does not appear to be capable of colonizing disturbed habitats (Shelly and Moseley 1988). In Oregon, sites where *H. aquatilis* was historically found are now within urban developed areas. Additionally, the construction of dams along the Columbia and Willamette Rivers has led to a loss of suitable wetland habitats (Shelly and Moseley 1988). The California colony may have been eliminated by cattle grazing and trampling (Griggs and Dibble 1979). Idaho bottomland habitats have been altered by roads, development, and conversion to agriculture and pasture lands. Wetlands at Turnbull National Wildlife Refuge in Washington were altered to improve waterfowl habitat prior to concern for *H. aquatilis*. Although it is not known if *H. aquatilis* existed in these locations prior to alteration, the current presence of this species in nearby wetlands indicates that occurrence of *H. aquatilis* in altered wetlands was likely (J. Gamon, Washington Natural Heritage Program, pers. comm., 1991).

Presently, timber harvest activities occur adjacent to many wetlands occupied by *H. aquatilis*. Of the 59 colonies of *H. aquatilis* found in the Swan Valley, Montana, 22 (37 percent) occur in wetlands where logging has occurred historically or more recently around the wetland margins (Shelly and Moseley 1988). Fifty-eight percent of the colonies in Montana occur on land administered entirely by the U.S. Forest Service, and an additional 7 percent of the colonies are partially owned by the U.S. Forest Service (Schassberger and Shelly 1991). Much of the private land in Montana with populations is owned by Plum Creek Timber Company (Shelly and Moseley 1988).

Tree removal to the edges of wetlands increases the amount of sun reaching the wetland, thereby increasing water temperature and evaporation. This would increase the rate of wetland drying and, perhaps, succession rates. Wetlands adjacent to logging and public access roads are vulnerable to road improvement activities. In cases where logging has occurred near the habitat margins, an increase in siltation rate into the ponds would be expected. Such a change would probably influence both the nature of the bottom substrates and the vegetational composition of the sites. As discussed above, *H. aquatilis* occurs most frequently and most densely in ponds with firm, consolidated organic clay bottom sediments. It also is frequently found in more open areas within the ponds. Thus, increase in bottom sedimentation and subsequent competition from other vegetation could both have an adverse effect on the viability of *H. aquatilis* colonies.

Howellia aquatilis and its habitats are threatened by *Phalaris arundinacea* (reed canary grass), a highly competitive, robust grass that invades wetlands. *P. arundinacea* rapidly forms dense monocultures, causing the decline of nearly all other plants in a wetland (Apfelbaum and Sams 1987). Both native and exotic varieties of this grass occur in North America. It is not known whether the variety that occurs in wetlands within the range of *H. aquatilis* is native (Lackschewitz 1991; L. Kunze, Washington Natural Heritage Program, pers. comm., 1993; S. Shelly, pers. comm. 1993). Because of its pernicious characteristics and the lack of historical records of its presence in wetlands occupied by *H. aquatilis*, some ecologists in the Pacific northwest believe this invasive of *P. arundinacea* to be exotic (L. Kunze, pers. comm., 1993). *P. arundinacea* is present in 15 of the 19 ponds (79 percent) occupied by *H. aquatilis* in Washington. Also, it has been found in several of the Montana ponds occupied by *H. aquatilis*. *P. arundinaceae* has the potential to reduce or extirpate *H. aquatilis* if its expansion continues.

Grazing and trampling from domestic livestock physically disturbs the shoreline and vegetation. Also, trampling of the bottom sediments may adversely affect the seed bank and the consolidated substrate which appears to be necessary for vigorous germination. Additionally, livestock waste increases nutrient levels of wetlands. Two wetlands on private land in Montana with *H. aquatilis* colonies were found to be heavily impacted by grazing of domestic livestock, especially horses (Shelly and Moseley 1988).

In Washington, 75 percent of the colonies occur on private land (J. Gamon, pers. comm., 1991), and many are grazed. In Spokane County, Washington, several of the ponds containing *H. aquatilis* have been significantly altered by past and current grazing. Some of these sites possibly have been grazed by domestic livestock for 50 years or more, yet the species has persisted (B. Wiseman, Ridgefield National Wildlife Refuge, pers. comm., 1992). This suggests that the ability of *H. aquatilis* to withstand the impacts of grazing at least in the short term may depend on the timing and scale of grazing. However, the number of colonies that may have extirpated in the past as a result of grazing is unknown.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

There is no history of this factor being a threat to *H. aquatilis*. However, because of the interest in the species that is expected to be generated by the listing process and its taxonomically distinct status as a monotypic genus, the Service is concerned that this problem may arise in the future. To help minimize this threat, the Service has not proposed critical habitat as this action requires delineation of the species' specific habitats (see Critical Habitat section of this rule).

C. Disease of Predation

Howellia aquatilis may be subject to foraging by native wildlife. In Idaho, domestic livestock did not feed on *H. aquatilis* (Shelly and Moseley 1988). Incidence of disease is not known.

D. The Inadequacy of Existing Regulatory Mechanisms

Some protection exists for this species because it is on the U.S. Forest Service's

sensitive species list for the Pacific Northwest region. Placing a species on a sensitive species list helps control the use of the species and its habitat. Although U.S. Forest Service policy is to protect habitats of listed and sensitive species from habitat modifications or destruction and to protect individual organisms from harm or harassment as appropriate, logging continues to be a threat to colonies on U.S. Forest Service lands. Some Federal laws, such as the Clean Water Act and the Food Security Act, contain protections for wetlands; however, whether these laws are sufficient to conserve *H. aquatilis* habitat is doubtful. Thirty-four of the 79 colonies (43 percent) occur entirely on private lands where they have no protection.

E. Other Natural or Manmade Factors Affecting its Continued Existence

The lack of genetic variation between and among populations of *H. aquatilis* and its extremely specialized habitat requirements add to the vulnerability of the species. Genetic variability generally enables at least some individuals of a species to withstand environmental stress. *H. aquatilis* may be less able to adapt to environmental changes because of its lack of genetic variability (Lesica et al. 1988). As a result, the vulnerability of this species to random environmental events or habitat alteration is high.

Short- and long-term climatic changes could affect *H. aquatilis* by their potential influences on the drying patterns of the ponds. As stated previously, several years of very wet or very dry years would be expected to cause declines or even extirpations of colonies because of the germination requirements of the seeds. Long-term climatic change, such as global warming, could cause these shallow wetlands to permanently dry up, ultimately causing the species' extinction.

Succession of individual wetlands, a process in which sediment accumulates, eventually filling the depression in which water collects, resulting in a change in plant species composition, would cause the extirpation of any *H. aquatilis* colony that is present (Shelly and Moseley 1988).

The Service has carefully assessed the best scientific and commerical information available regarding the past, present, and future threats faced by this species in determining to propose this rule. Based on this evaluation, the Service proposes to list *Howellia aquatilis* (water howellia) as a threatened species. Historical records show that *H. aquatilis* has been extirpated from one-third of its global range (Shelly and Moseley 1988). Remaining *H. aquatilis* colonies are clustered in only two main areas in the northwestern United States. *H. aquatilis* lacks genetic variation between or among populations and is a habitat specialist. For these reasons it is vulnerable to both natural and man-caused habitat perturbations. For the reasons given below, it is not considered prudent to propose designation of critical habitat.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that, to the maximum extent prudent and determinable, the Secretary proposes critical habitat at the time the species is proposed to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for this species at this time. As discussed under Factor B in the "Summary of Factors Affecting the Species" section, *H. aquatilis* is vulnerable to taking. Publication of precise maps and descriptions of critical habitat in the **Federal Register** would make this plant more vulnerable to incidents of vandalism and could contribute to the decline of the species as has been documented with other listed species (e.g., *Hudsonia montana*) (N. Murdock, U.S. Fish and Wildlife Service, pers. comm., 1991). A listing of *H. aquatilis* as threatened would also publicize the rarity of this plant and, thus, could make it attractive to researchers or collectors of rare plants. Because it is a monotypic genus, it could be expected to stimulate more interest than most other species. The proper agencies have been notified of the locations and management needs of this plant. Landowners are being notified of the location and importance of protecting habitat of this species. Protection of this species' habitat will be addressed through the recovery process and through the Section 7 consultation process. The Service believes that Federal involvement in the areas where this plant occurs can be identified without the designation of critical habitat. Therefore, the Service finds that designation of critical habitat for this plant is not prudent at this time, because such designation likely would increase the degree of threat from vandalism, collecting, or other human activities.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain activities. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against certain activities involving listed plants are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) requires Federal Agencies to confer informally with the Service on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. If a species is subsequently listed, section 7(a)(2) requires Federal agencies to insure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal Agency must enter into formal consultation with the Service.

Federal activities that may be affected by this proposal include, but are not limited to, timber harvesting, grazing on Federal land, road construction, and permits for placing fill in wetlands. Such Federal activities may be subject to Section 7 review.

The Act and its implementing regulations found at 50 CFR 17.71 and 17.73 set forth a series of general prohibitions and exceptions that apply to all threatened plants. All prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.71, apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export, to transport in interstate or foreign commerce in the course of a commercial activity, to sell or offer for sale listed species in interstate or foreign commerce, or to remove and reduce to possession the species from areas under Federal jurisdiction. In addition, for endangered plants, the 1988 amendments (Pub. L. 100-478) to the Act prohibit the malicious damage or destruction on

Federal lands and the removal, cutting, digging up, or damaging or destroying of endangered plants in knowing violation of any State law or regulation, including State criminal trespass law. Section 4(d) of the Act allows for the provision of such protection to threatened species through regulations. This protection may apply to threatened plants once revised regulations are promulgated. Certain exceptions apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.72 also provide for the issuance of permits to carry out otherwise prohibited activities involving threatened plants under certain circumstances. The Service anticipates that few trade permits would ever be sought or issued because the species is not in cultivation or common in the wild. Requests for copies of the regulations on listed plants and inquiries regarding prohibitions and permits may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, room 432, Arlington, Virginia 22203–3507 (703/358–2104).

Public Comments Solicited

The Service intends that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning this proposed rule are hereby solicited. Comments particularly are sought concerning:

(1) Biological, commercial trade, or other relevant data concerning any threat (or lack thereof) to *H. aquatilis*;

(2) The location of any additional populations of this species and the reasons why any habitat should or should not be determined to be critical habitat as provided by Section 4 of the Act;

(3) Additional information concerning the range distribution and population size of the species; and

(4) Current or planned activities in the subject area and their possible impacts on this species.

The final decision on this proposal will take into consideration the comments and any additional information received by the Service, and such communications may lead to a final regulation that differs from this proposal.

The Act provides for a public hearing on this proposal, if requested. Requests must be received within 45 days of the date of publication of the proposal. Such requests must be made in writing and addressed to the Field Supervisor, U.S. Fish and Wildlife Service, Helena, Montana (see **ADDRESSES** section).

National Environmental Policy Act

The Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the Federal Register on October 25, 1983 (48 FR 49244).

References Cited

Apfelbaum, S.I. and C.E. Sams. 1987. Ecology and control of reed canary grass (*Phalaris arundinaceae* L.) Natural Areas J. 7:69–74.

Griggs, F.T. and J.E. Dibble. 1979. Status report, *Howellia aquatilis* Gray, for the Mendocino National Forest. Unpubl. rpt. Mendocino National Forest, California. 12pp.

Lackschewitz, K. 1991. Vascular plants of west-central Montana—identification guidebook. U.S. Forest Service, Intermountain Res. Sta. Gen. Tech. Rpt. INT–277.

Lesica, P. 1990. Habitat requirements, germination behavior and seed bank dynamics of *Howellia aquatilis* in the Swan Valley, Montana. Unpubl. rpt. Flathead National Forest, Kalispell, Montana. 48pp.

Lesica, P., R.F. Leary, F.W. Allendorf, and D.E. Bilderback. 1988. Lack of genic diversity within and among populations of an endangered plant, *Howellia aquatilis* Conserv. Biol. 2:275–282.

Schassberger, L.A. and J.S. Shelly. 1991 Update to the status review of *Howellia aquatilis*: field surveys, monitoring studies, and transplant experiments. 1990. Unpubl rpt. U.S. Forest Service, Flathead National Forest, Kalispell, Montana. 57pp.

Shelly, J.S. and R. Moseley. 1988. Report on the conservation status of *Howellia aquatilis*, a candidate threatened species Unpubl. rpt. Montana Natural Heritage Program, Helena, Montana. 166pp.

Author

The primary author of this proposed rule is Lori H. Nordstrom (see **ADDRESSES** section).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, and Transportation.

Proposed Regulation Promulgation

Accordingly, it is hereby proposed to amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—[AMENDED]

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 16 U.S.C. 1531–1544; 16 U.S.C. 4201–4245; Pub. L. 99–625, 100 Stat. 3500, unless otherwise noted.

2. It is proposed to amend § 17.12 (h) by adding the following, in alphabetical order under the family Campanulaceae, to the list of Endangered and Threatened Plants:

§ 17.12 Endangered and threatened plants.

* * * * *

(h) * * *

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
*	*	*	*	*	*	*
Campanulaceae—Bellflower family:						
*	*	*	*	*	*	*
Howellia aquatilis	Water howellia	U.S.A. (MT, ID, WA, OR, CA)	T		NA	NA
*	*	*	*	*	*	*

Dated: April 6, 1993.

Richard N. Smith,

Director, Fish and Wildlife Service.

[FR Doc. 93-8945 Filed 4-15-93; 8:45 am]

BILLING CODE 4310-55-M